

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

INDIANAPOLIS

OFFICE MEMORANDUM

DATE: May 21, 2010

TO: Jaworski, Mark; OLQ SI THRU: Admire, Beth; OLC
Hauer, Gabriele; OLQ SI

FROM: Smith, Jim R., OLQ, NRD Program

SUBJECT: Gary Development Landfill Site, Gary, Lake County, Indiana
Addendum 2 of December 9, 2009 Memorandum

Indiana Department of Environmental Management Natural Resource Damage Program was requested to provide additional information regarding Endangered Species potential use of the Gray Development Site. Specifically:

Information should be added to the 2009 Memorandum indicating the sensitive environment was 1) suitable as habitat for [the Marsh Wren] before the habitat was impacted by releases from the site; 2) would be conducive to this species again (this particular species); and 3) is within the range of the particular species identified.

Comments are addressed by the following additions to the 2009 Memorandum:

1) Gary Development Landfill site provided suitable habitat for Marsh Wrens prior to its development.

As late as 1954 (Figure 1) the area currently occupied by Gary Development Site landfill consisted of native dune and swale habitat. Areas adjacent to the Grand Calumet River and deeper swales provided environments suitable to growth of cattails, rushes and other aquatic plants extensively utilized by Marsh Wren for nesting and feeding habitats (Bacone 1980, Labus 1997). Butler (1898) referred to the Marsh Wren as an abundant resident of Indiana's marshes with *Cistothorus palustris* [Marsh Wren] surely nesting at every site that provided the requisite cattail stands (quoted in Brock 1997 and 1999-2000). Brock (1986) found the Marsh Wren to be a summer resident and transient through the Dunes and "... is found almost anywhere cattails grow in abundance."

Marsh Wrens prefer wetland habitats featuring dense cattails (*Typha angustifolia* or *Typha x glauca*), reeds (*Phragmites australis*) and bulrush (*Schoenoplectus tabernaemontani*). Emergent vegetation is the most significant component of nesting habitat for Marsh Wrens (Reeb, et al. 2007). They inhabit freshwater marshes, roadside ditches, and small runoff sites, and will even nest in invasive plants such as purple loosestrife (*Lythrum salicaria*), common reed (*Phragmites australis*), and reed-canary grass (*Phalaris arundinacea*). In winter, they frequent a wider variety of habitats, including wet meadows (Seattle Audubon 2005-2008). Marsh Wrens eat mainly invertebrates, especially spiders and insects including bees, ants, wasps, beetles, dragonflies, damselflies and moths. Marsh Wrens forage on or near the marsh floor, gleaning insects from stems and leaves of vegetation and from the water's surface. Some also forage in thickets or shrub patches that occur near the marsh (Castrale, Hopkins and Keller 1998; Reeb, et al. 2007).

Most riverine and all other suitable Marsh Wren habitat was destroyed during initial sand mining and subsequent land filling activities at the Gary Development site (Figures 2 – 6). Contaminants associated with river sediments and released from the Gary Development Landfill site have continued to depress suitability of the little remaining habitat at this site.

2. Gary Development Site would be conducive to providing habitat for the Marsh Wren after remediation

Keating (ca 2006) writing for the U.S. Environmental Protection Agency Great Lakes National Program Office and Environment Canada Great Lakes and Corporate Affairs Branch has documented that recently indicated reductions in the use of chemicals that damage the ability of many wildlife species to reproduce has resulted in resurgence of populations of Bald Eagles (*Haliaeetus leucocephalus*), and other species, but that populations of black terns (*Chlidonias niger*), American coot (*Fulica Americana*), **Marsh Wren** [emphasis added], and other species are declining, largely because of loss of wetlands and other important habitat.

Remediation of the Gary Development Landfill site in a manner that would provide for the mitigation of wetland habitat along the north bank of the Grand Calumet River, along the drainage ditch running along the eastern edge of the site and restoration of contaminated habitat associated with the northern wetland pond would enhance habitat for the Marsh Wren. Common Reed and cattails are currently part of flora of the riverine wetlands (Rothrock, 2007). Remediation and restoration of the wetlands to reduce common reed, and increase occurrence of bulrush would enhance Marsh Wren use of the restored habitat.

3. Gary Development Landfill is within the range of the Marsh Wren

The Marsh Wren breeds from British Columbia, central interior Canada, Manitoba, and Nova Scotia south to Mexico, the Gulf coast, and Florida and spends winters across the southern tier of the United States, north to Washington on the west coast and to New Jersey on the east coast and south into Central America (Whatbird.com 2002-2007; Peterson 1980; and Castrale, Hopkins

and Keller 1998). Castrale, et al. (1998) found that Atlas blocks with Marsh Wren were primarily restricted to the northern quarter of Indiana and were reported on Summer Bird Counts in most of the state, but extremely rare in all regions except for northern Indiana.

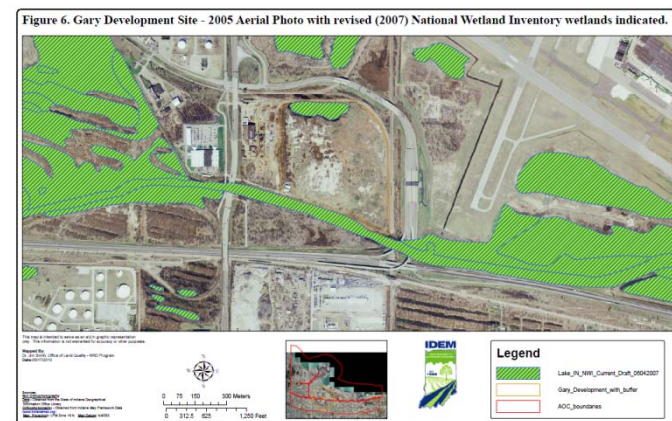
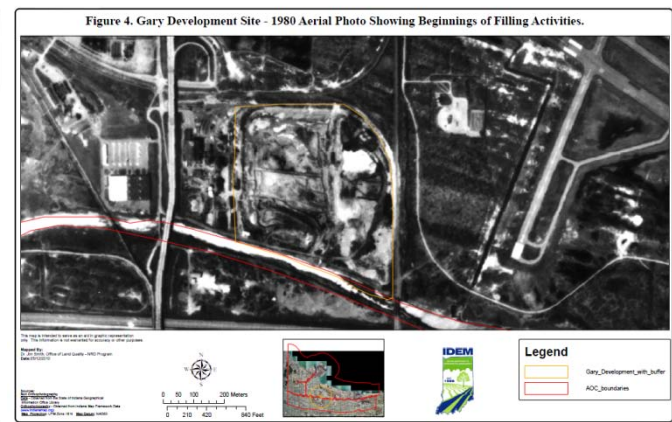
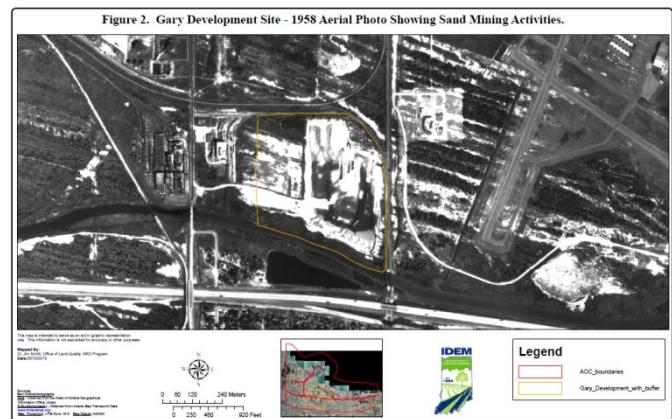
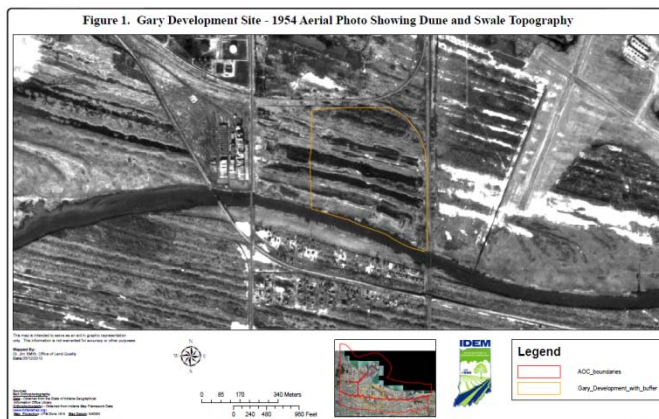
The Gary Development Landfill Site is within the range of the Marsh Wren within the State of Indiana, in the Midwest and in its National/International summer and breeding range of the Marsh Wren.

References

- Bacone, J. A., R.K. Campbell, and G. Wilhelm. 1980. Presettlement vegetation of Indiana Dunes National Lakeshore. Pages 1566-191 *in* Proceedings of Second Annual Symposium on Scientific Research in National Parks, National Park Service, Washington DC, USA.
- Brock, K. J. 1986. Birds of The Indiana Dunes. Indiana University Press, Bloomington. 178p.
- Butler, A. W. 1898. The birds of Indiana. Indiana Department Natural Resources 22nd Annual Report, 1897, Indianapolis. pp.515-1187.
- Castrale, J. S., E. M. Hopkins, and C. E. Keller. 1998. Atlas of Breeding Birds of Indiana. Indiana Department of Natural Resources, Division of Fish And Wildlife, Nongame and Endangered Wildlife Program. 388p.
- Keating, M. ca 2006. Our Great Lakes: What is happening to them, what it means and what you can do to help keep them great. Produced by: Great Lakes and Corporate Affairs Branch. Environment Canada; and Great Lakes National Program Office, U.S. Environmental Protection Agency. 28p. <http://binational.net/ourgreatlakes/ourgreatlakes.pdf>
- Labus, P. 1997. Habitats. Pages F54 – F79 *in* Grand Calumet River – Indiana Harbor Canal Sediment Cleanup and Restoration Alternatives Project Report. U.S. Army Corps of Engineers Chicago District, Great Lakes and Ohio River Division. 108p + Appendices.
- Peterson, R. T. 1980. A field Guide to the Birds: Eastern Birds. Houghton Mifflin Company, Boston. 384+3p.
- Reeb, M. L., L. Wiland, and T. Yao. 2007. Migratory Birds of the Great Lakes. University of Wisconsin Sea Grant. http://seagrant.wisc.edu/birds/Marsh_Wren_habitat.html.
- Rothrock, P. E. 2007. Status of plant communities along the Grand Calumet River, Lake County, Indiana based upon two rapid assessment methodologies. Report prepared by Paul Rothrock Randall Environmental Center, Taylor University under U.S. Fish and Wildlife Service, Bloomington Field Office agreement #301816J04. 82p.

Seattle Audubon Society. 2005-2008. Bird Web: Learn About the Birds of Washington State.
http://www.seattleaudubon.org/birdweb/bird_details.aspx?id=342

Whatbird.Com. 2002-2007. Marsh Wren *in*: Field Guide to Birds of North America.
http://identify.whatbird.com/obj/137/overview/Marsh_Wren.aspx.



Figures 1 – 6. Gary Development Site – Aerial photographs illustrate pre-development habitat (Figure 1) in 1954, early (Figure 2) and late sand mining activities (Figure 3), industrial filling (Figure 4), and post filling at the site (Figures 5 and 6).